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The Planting and Care of Shrubs and Trees

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The Planting and Care of Shrubs and Trees

By Donald J. Bushey

Did you ever have a plant die after you planted it? You will have some failures even when you follow recommended procedures, but the loss will decrease to a negligible amount if you set the plant at the proper depth, use a good planting soil, firm the soil thoroughly around the roots, prune the stems slightly, keep the ground moist, and place a mulch on the ground around the plant. Of course it is assumed that the roots have not been seriously broken or allowed to dry out before planting.

Season to Transplant

The most favorable season to transplant woody ornamentals varies from one locality to another, depending largely on climate. Fortunately, many hardy trees, shrubs, and vines can be moved successfully either in the fall or the spring. Your local nurseryman can advise you. The fall planting season extends from the time the leaves begin to turn color to the time the ground freezes; the spring planting season begins when the frost is out of the ground and the soil is dry enough to work satisfactorily and continues until growth starts. The farther from

these limits the work is done, the greater will be the risk. Tender plants, such as garden roses, usually are most successfully moved in the spring.

Some nurseries now sell and plant woody ornamentals throughout the summer. They store the plants with a ball of earth on the roots. The ball is wrapped in burlap, or set in a special container, and packed in wet peat or in loose ground kept moist. The plants thus remain in good growing condition until they are planted. Transportation and planting does not disturb the root system to a marked degree, and, with little extra care in watering, the plants do well. Large trees can be moved with success in midsummer when the trees are in full leaf. The main consideration in the survival of these plants seem to be in giving them enough moisture.

Digging Plants to Be Transplanted

You may successfully transplant some of the good ornamental native shrubs and trees to form a part of the home landscape. Be sure to dig no shrub or tree that grows infrequently in your neighborhood.

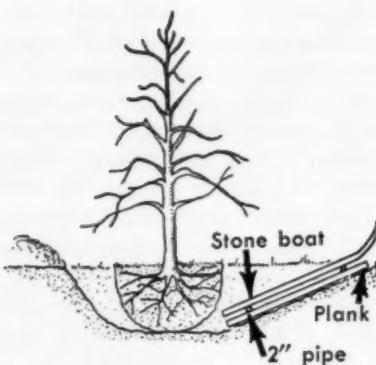
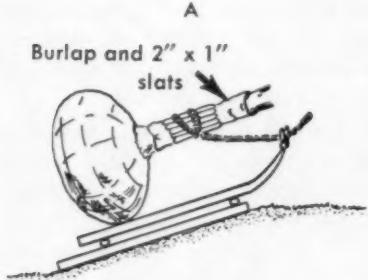
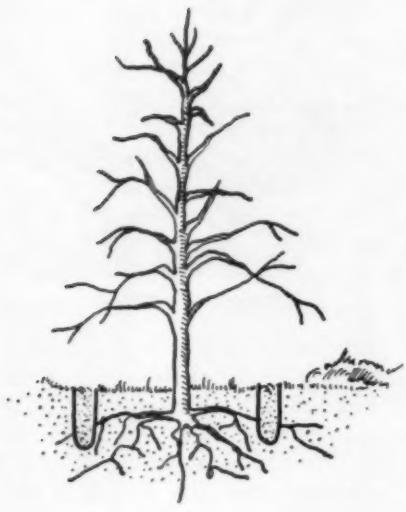
When a plant is moved, the roots are disturbed and many of them are broken. Cut the ends of broken roots smooth with a sharp knife or pruning shears. The disturbance and decrease of actual absorbing surface of the root system must be balanced by cutting back the top (decreasing the foliage surface) of deciduous plants. Deciduous plants are those that drop their leaves in winter. Evergreens are pruned very little, if at all.

Shrubs, vines, and trees to be transplanted from a natural stand or from one part of a home ground to another are removed most safely with a ball of earth on the roots (figure 1). This is simple enough for plants that grow in a clay or clay loam soil. Those growing in sandy or gravelly soil are more difficult to move with a ball of earth because the soil falls away from the roots as the plant is dug. You can, however, dig a large root system on a plant growing in light soil. Use a pick to comb the soil away from the roots and a shovel to remove loose soil, but take care not to cut or damage the roots. If you do the work during a cloudy day, the roots will not dry out quickly while you remove the plant. If you must move the plant on a sunny day, puddle the soil around the roots so the small roots will be covered with this mud. Then cover the roots with wet burlap to protect them from the sun and wind. Any plant should be set in the new location as soon as possible.

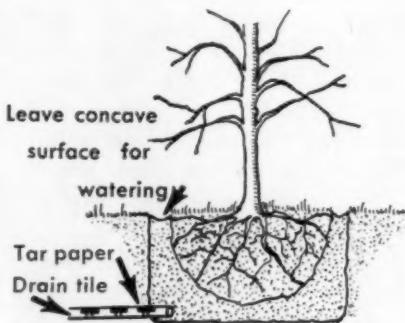
Shrubs, either deciduous or ever-

green, are successfully transplanted with a ball of earth about one half the spread of the branches. A small *vine* may require a ball from 12 to 18 inches in diameter, while a large one may need a 2- or 3-foot ball of earth. *Trees*, either deciduous or evergreen, are successfully moved with a ball of earth on the roots.

A good shade tree less than 1½ inches in diameter is hardly worth transplanting. One that size or somewhat larger will recover quickly from the shock of transplanting and will make good growth thereafter. A 3-inch tree can be moved without great difficulty. A 6-inch tree can be moved short distances on a stone boat (figure 1, A, B, and C) and for greater distances with a tractor with a power lift. If you use a power lift, protect the tree from damage at any point where it is secured to the lift. With either large or small trees, dig a trench around the tree so the "island" measures 1 foot in diameter for each 1 inch of tree-trunk diameter (figure 1, A) and cut underneath to loosen the ball of earth (figure 1, B). Columnar or pyramidal forms of evergreens may require a ball of earth as wide or wider than the spread of the branches. If the weight to be moved needs to be lessened, decrease the size of the ball by loosening the outside edges with a pick, iron bar, or spading fork; be careful not to damage the exposed roots which should be covered with wet burlap to protect them from the sun and wind. If the tree is growing in clay soil, the ball will not break so



B



D

C

A. Dig a trench in a circle around the plant to be moved. B. Dig under the plant to obtain a ball of earth. C. Bind the ball with burlap to prevent breaking the ball. Protect the trunk with burlap and wood slats. Use a stone boat or power equipment to move heavy plants. D. When planting, leave concave surface around base of plant. When planting large trees in poorly drained soil, use drain tile with joints covered with tar paper.

easily as one of sandy or gravelly soil. In either case, wrap the ball securely enough to keep it from breaking.

To move a very large tree, 8 inches or more in diameter, special equipment is needed, and trained men should do the work. The main advantage in moving a large tree is the immediate effect and shade obtained.

Nursery-Grown Plants

All trees, shrubs, and vines, both deciduous and evergreen, grown in nurseries, if they have been properly cared for, will have been transplanted or root-pruned at least two or three times before they are ready for market. In the process of root-pruning and transplanting, the long roots

are cut off, which stimulates a growth of fibrous, or feeding, roots in a mass directly underneath the plant. This makes digging, packing, transporting, and planting much easier, and the plants become established quicker when they are set out than do collected plants. Most nursery plants are better shaped than native trees and shrubs from fields and woods. The tops have been pruned for a desirable head, while many of the native plants require careful pruning to obtain a well-formed plant. Most deciduous shrubs and small trees are delivered from the nursery with bare roots wrapped in a moist packing material. Deciduous shrubs that are difficult to move successfully, large trees, and evergreens are delivered with a ball of earth which is wrapped in burlap.

Heel in any plants that cannot be set as soon as you receive them. Dig a trench, place the roots in the bottom, and cover them with soil (figure 2). If the roots are dry, immerse them in water for an hour or two before you heel them in. Keep the soil that has been firmed around the roots moist until it is frozen, or until the plants can be set in permanent positions.

Preparing the Soil

Most soils, especially excavation subsoils, need to be improved before they are suitable for growing plants. Usually they are deficient in organic matter (decomposed vegetable materials), but can be improved by adding about one-fourth, by volume, of well-rotted manure, peat, or any

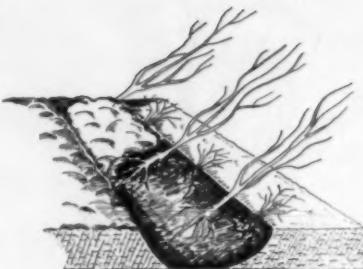


Figure 2. Heeling in

other easily available organic material to three-fourths of soil. In a shrubbery bed, a 2- to 3-inch layer can be spread over the area and forked into the top 8 to 10 inches of soil. For a specimen plant, such as a shade tree, dig a single hole large enough to hold the tree, and mix the soil thus obtained with one-fourth that amount of the chosen organic material.

Acid-soil plants, such as rhododendrons, blueberries, mountain andromeda, laurel, and the like, require special soil conditions: high organic, moist soil that is acid in reaction. Never set these plants in a place that is underlaid with limestone, as it will be almost impossible to keep the soil acid enough for thrifty growth. Soil that is slightly alkaline in reaction may be changed to acid by mixing it with powdered sulfur in these amounts:

Acidity at start	Sulfur to 100 square feet (pounds)
Medium acid (pH 5.5 to 6.0)	2 pounds
Slightly acid (pH 6.0 to 7.0)	4 pounds
Slightly alkaline (pH 7.0 to 7.5)	7 pounds
Strongly alkaline (pH 7.5 to 8.0)	unsuitable for use

You may repeat this application year after year if a test of the soil indicates that a more acid soil is required for the best growth of the plants. A pH value of 4.0 to 5.0 is suitable for most acid-soil plants; pH 7.0 is the neutral point, so pH 5.0 is 2 points on the acid side.

A bed made to receive a planting of acid-soil plants may be composed of acid woods dirt that contains a large amount of organic matter. If this is not available, you can prepare a satisfactory bed with equal parts of acid garden loam, acid sand, and acid peat. Mix these materials together before you do any planting.

Planting

Bare-rooted plants

Plants that are delivered, or those that have been dug with bare roots, such as deciduous shrubs and small trees, should be planted at once. Dig a hole large enough to allow the roots to be spread out completely. Set each plant at about the same level that it was growing in its previous location. In heavy clay, you may set the plant a little high; in sandy soil or garden loam, a little deeper. Pack good soil, free from sod, stones, and large lumps, firmly around the roots, with a tamping tool such as a shovel handle. If you obtain any subsoil, such as clay, in the process of digging the hole, spread this on top; do not place it around the roots. Do not mound the soil around the base of the plant; make a concave surface (figure 1, D) to drain the water toward the

roots rather than off to the side.

After you plant a medium- to large-sized tree, fasten it securely with guy wires (figure 5) to keep it from swaying in the wind, which would loosen the roots and cause the tree to lean. Use rubber hose, wood slats, or screw eyes to secure the wires to the tree to protect it from being girdled.

Plants with a ball of earth

Plant at once plants that are delivered with a ball of earth on the roots and wrapped in burlap, such as medium-sized trees and evergreens. Dig a hole large enough to have a 6- to 12-inch clearance all around the ball of earth. Make the hole for the plant from 2 to 3 inches deeper than the height of the ball of earth (figure 3). For best results mix the soil for the backfill with wet peat (page 5). Shovel from 2 to 3 inches of this mixture into the bottom of the hole before you set the plant, with the burlap still around the ball of earth. Pack from 2 to 3 inches of fertile soil around the sides. Then cut the burlap loose and lay it back on this shallow layer of

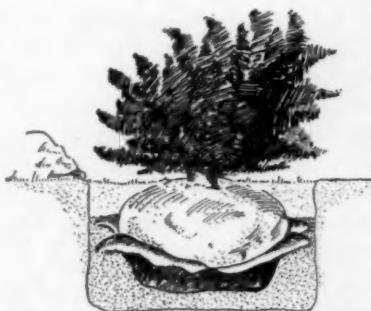


Figure 3. Method of planting a shrub with a ball of earth

earth; be careful not to break the ball. Fill the hole half-full of good soil, and water the plant thoroughly. After the water has soaked in, fill the hole with just enough firmed soil to leave a saucer-shaped surface around the base of the plant.

Watering

A thorough watering at the time the plant is set helps to settle the soil around the roots. Never allow the ground to dry out, at least during the first growing season. Use the hose as often as is necessary. Just keep the soil moist. With most plants, over-watering is as injurious as under-watering, particularly in heavy clay soil.

Mulching

After planting, spread a mulch of some material such as peat, well-rotted manure, straw, sawdust, or leaves over the bed to a depth of from 2 to 3 inches. If you plant in the fall, leave the mulch on the surface of the bed as it prevents the frost from going to the depth that it ordinarily would and decreases the amount of destructive alternate thawing and freezing in the spring and fall. In the spring, work this protecting mulch into the soil with a spading fork, but be careful not to spade deep enough to injure the roots seriously. In spring planting, the mulch may be applied as it was for fall planting and left on the surface of the ground through the summer and the following winter.

A permanent mulch usually is kept underneath acid-soil plants. It may be composed of acid peat, oak leaves,

pine needles, tan bark, or well-decayed sawdust. As this mulch decomposes, put more on to keep the depth at 3 to 4 inches.

Pruning Newly Set Plants

Shrubs and vines

As soon as a *shrub* or *vine* is set, cut back the top from one-third to one-half its foliage surface, particularly those that are transplanted with bare roots (figure 4). In cutting, be sure to keep the shrubs in their natural form of growth. Old and interfering branches can be cut off at the ground or at a point flush with the branch from which it is growing. Remove some lateral branches to thin densely

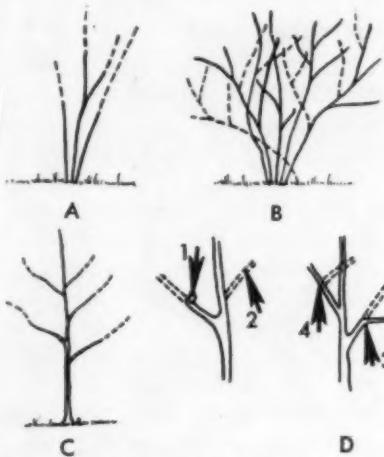


Figure 4. Pruning shrubs and trees

A. Pruning a newly planted, sparsely branched shrub. B. Pruning a newly planted or established shrub-form plant. C. Pruning a newly planted, sparsely branched tree. D. Detailed pruning in the head of the plant: (1) Pruning to an inside bud. (2) Pruning flush with a main stem or trunk. (3) Pruning to an outside bud. (4) Pruning flush with a lateral branch.

branched areas in the head of the plant. Make these cuts just above a joint.

Deciduous trees and tree-form shrubs

Deciduous trees and tree-form shrubs are trimmed by merely thinning out the head of the plant about one-fourth (figure 5). Do not cut out the main leader. Thin crowded areas. Correct other faulty structures by cutting out interfering branches and eliminating narrow crotches, as they are not so strong as are wide ones. Make all cuts directly above a joint, or, if a branch is completely removed, cut it off flush with the main trunk of the tree (figure 6). Broken branches should be cut back to the first joint below the break.

Evergreens

Evergreens that have been recently planted are not pruned except to cut off broken or dead branches. Do not cut off the leader of pines, spruces, and the like as this would disfigure

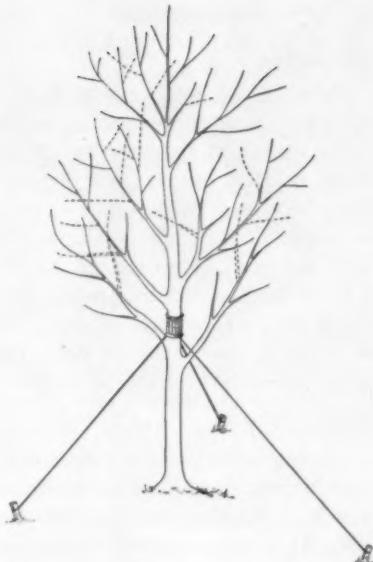


Figure 5. Pruning trees and tree-form shrubs. Secure newly planted tree with guy wires.

the tree. Junipers, arborvitae, yew, and many others may be trimmed by cutting off the ends of the lateral branches. This trimming forces a dense growth.

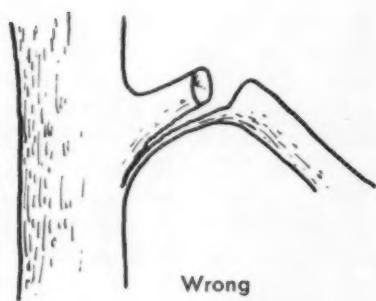
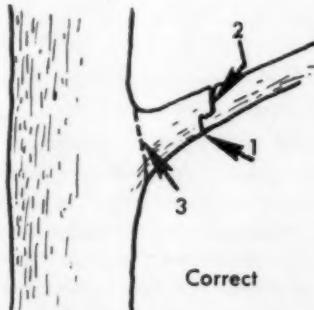


Figure 6. Wrong and correct way to cut off a large branch. *Left: wrong.* *Right:* (1) first cut; (2) second cut; (3) third cut.



Maintenance

Cultivating

Shrub borders need only to be cultivated to eliminate the weeds. As the plants mature in size they become so dense that few weeds grow beneath them. Specimen plants, such as trees or large shrubs, usually are grown with the grass extending up to the base of the plant. Some persons prefer to have a bare circle of ground at the base of the plant; the bare area needs only to be kept free of weeds.

Mulching

Much may be said about the use of a permanent mulch; that is, having a mulch on the shrubbery bed the year around. Summer mulch discourages the growth of weeds and helps to retain the moisture. Protect newly set, hardy plants with a mulch, particularly during the first winter, and protect tender plants with a mulch every winter. Several materials have been experimentally tested for mulching purposes and those that proved to be best are peat, leaves, pine needles, ground corncobs, sawdust, straw, excelsior, and strawy manure. How to mulch acid-soil plants is discussed on page 6.

Watering

By the second or third year after transplanting, trees, shrubs, and vines have become established and need not be watered artificially except in abnormally dry summer weather. During a dry season, you may water them with a hose if the plants show need for it as indicated by wilting leaves. When

water is needed, soaking the ground thoroughly once a week is better than light watering each day.

Fertilizing

Inorganic commercial fertilizers are the most common types used today. They are made in various mixtures. A 5-10-5 fertilizer contains 5 percent of nitrogen, 10 percent of phosphorus, and 5 percent of potash. 10-20-10 fertilizer contains the same proportion of each element but is twice as strong as a 5-10-5 and would therefore be used at half the rate.

The extent to which fertilizers are applied for established plants depends upon the fertility of the soil in which they are growing. A strongly growing plant is more resistant to damage by insects and diseases. If plants are making good growth and have good foliage color, the soil in which they are growing is fertile enough and you need add no more fertilizer. If malnutrition is evident, as indicated by short and weak current season's growth not caused by lack of moisture, fungus or insect attack, you may add fertilizer to improve the soil. Fertilizers may be used in the spring about the time the buds are beginning to break. If additional fertilizer is required, you may apply it in mid-summer and follow by a thorough watering. Early fall fertilization sometimes forces new, tender growth that may not harden before winter sets in, but late fall applications are satisfactory.

A 5-10-5 fertilizer may be broadcast on a shrubbery bed at the rate of

25 pounds to each 1000 square feet. Individual plants, depending upon their size, would receive from 1 to 3 or 4 handfuls.

Several methods are used to fertilize trees. You may broadcast the selected material on the surface of the ground under the tree either in the dry or liquid form. Some persons use a crowbar to drive holes in the ground about 3 feet apart and from 12 to 15 inches deep in an area somewhat wider than the branch spread. They then pour a small amount of fertilizer, about $2/3$ of a cup, in each hole and fill the hole with water. Professional tree surgeons have special equipment with which they disperse the fertilizer through the ground with air or water pressure.

The amount of fertilizer to use depends upon the size of the tree: 1 pound of 10-6-4 fertilizer for each 1 inch of tree trunk diameter for small trees up to 3 inches in diameter, and 3 pounds of fertilizer to the inch for trees of larger diameter.

For acid-soil plants, such as rhododendron, laurel, and leucothoe, you may use cottonseed meal (about 5-2-2 analysis) at the rate of 4 pounds to 100 square feet of bed surface. This is a slowly available fertilizer and is acid in reaction. If cottonseed meal is not available, a 10-6-4 fertilizer, or one of about that analysis, may be used at the rate of 2 pounds to each 100 square feet. You may apply nitrogen in the form of ammonium sulfate.

Pruning

The pruning done at the time of planting is all that will be needed on

most trees and shrubs for two years or more. After that time the condition and shape of the shrubs and their location on the property help to determine the amount and character of pruning to be done each year. Keep the shrubs, either individually or as a group, in a normal shape and in a healthy condition.

Method of Pruning

Shrubs that are growing with many branches from the base (shrub-form) usually are pruned to obtain new branches year after year (figure 4, B). To accomplish this gradual renewal, cut off a few of the oldest branches as near to the ground as possible, which probably will force a growth of some new branches from the base of the shrub. Choose each branch to be removed carefully from the most dense parts of the plant. The following year cut off a few more of the oldest branches. You may continue this practice until all the oldest branches have been removed and new ones have taken their place. Sometimes, if the cutting of old branches is overdone at any one time, long straight shoots are produced. These should be cut off flush with the mother branch, leaving only the normal new growth. After some of the old stems have been removed, some shrubs may still be very dense on one side. You may need to thin a few of these dense areas by removing ill-shaped, crowding, and rubbing branches (figure 4, D). Make each cut in the head of the plant flush with the branch from which the one

to be removed arises or at a place from $\frac{1}{2}$ to $\frac{1}{4}$ inch above a bud.

Many shrubs, if they have become ill-shaped, may be cut off at the ground in the fall or early spring and allowed to grow up from the base. A few others, including *buddleja* and *snowhill hydrangea*, may be cut off at the ground each fall. They will make a complete growth and flower in one season.

Some shrubs, such as *lilacs* and *azaleas*, seem to have alternate seasons of prolific bloom. More consistent bloom will be obtained annually if you cut off the flower heads immediately after they have faded.

Obviously, all dead branches are removed and an important part of insect and disease control is done by cutting out and burning infested twigs and branches.

After *vines* have become established, little trimming is done. Sometimes overcrowded portions are thinned by cutting off a few large branches at the base. As with shrubs, thin vines from one to two weeks after they have flowered if you want maximum flower production.

Because of the density of many vines and because of their tenacious character, it is more difficult to remove pruned branches than it is with shrubs. Twining stems cling to each other and to fences and trellises that support them. Clinging vines hold fast to their supporting walls. Therefore, cut short lengths and free each one in succession.

Deciduous trees and tree-form or

semitree-form shrubs, whether large or small, are trimmed in much the same way as described on page 9. Remove all dead, interfering, or broken branches and unnecessary wood. Never leave a stub end on a tree (figure 6). Take special care to maintain the natural shape of the tree and the ultimate strength of its structure. A narrow crotch is not so strong as a wide one, so try to eliminate the narrow angles that may exist between two branches. Some small twigs may be trimmed off where they are too close together. Make all cuts just above a bud or flush with the branch from which it is growing.

The best time for general tree pruning is during the late winter or very early spring. In early spring, cambium growth, those cells between the bark and the solid wood, is most active and pruning wounds heal much more quickly than at other times of year. Such trimming may, however, be done at almost any time of the year without damage to the tree if you take proper precautions to paint all wounds $\frac{1}{4}$ inch or more in diameter. The best paint is emulsified asphalt.

Some tree-form and semitree-form shrubs, such as *peegee hydrangea* and *shrub althea*, may be forced to grow in shrub-form by cutting off all of the stems near the base.

Extensive *tree surgery* by the amateur is not recommended. You may, however, gouge out rotted and diseased wood in a tree and paint the exposed surface with a fungicide, such as bordeaux paste or copper sulfate (1

ounce to 1 gallon), and cover this surface with emulsified asphalt or a dark-colored linseed oil paint. Cover the cambium layer with orange shellac before you apply the other materials.

If you brace weak crotches, be careful not to girdle the branches that are to be supported. To save a weak crotch from splitting, place screw hooks in the two branches to be strengthened and secure a cable between them.

Narrow-leaved evergreens may be pruned at any time of year except during the spring growing season or the hot, dry periods of summer. The best time is early spring before growth has started, but this work may be done in October when growth has ceased. Evergreen trees, such as pines and spruces, usually are not trimmed except to cut out dead or diseased wood. You may, however, force a dense growth on these trees by cutting off the ends of the lateral branches. The same is true of evergreens, such as arborvitae, junipers, yew, and retinospora. Shrub-form narrow-leaved evergreens, such as Pfitzer juniper and shrub Japanese yew, usually grow to a considerable width and, over a period of years, absorb a larger space than was intended. To keep these informal in character and to decrease their width, cut back their side branches irregularly, in a staggered fashion. Cut more length from some branches than from others. The side branches, however, may be cut off evenly to produce a formal shaped plant.

The principle value of a plant from

an ornamental standpoint must be taken into consideration when you prune. Some plants are best grown for their flowers, others for their fruit, and still others for their stem coloration.

Trees, shrubs, and vines that have attractive flowers must be pruned with consideration to the time of year when they bloom. The early flowering kinds, such as forsythia, deutzia, Vanhouttes spirea, lilacs, and the like, bloom from buds formed on last summer's twigs. Prune such shrubs from one to two weeks after they bloom if you want a maximum number of flowers. If you delay this pruning until winter, you remove last summer's twigs which results in a considerable loss of bloom until the plant has had a year to grow new twigs and produce new flower buds. Late-flowering plants produce new twigs in the spring, and on this new wood the flowers appear late in the season. Examples of this group are peegee hydrangea, shrub althea or rose of sharon, Anthony Waterer spirea, and rugosa rose. Prune such plants any time from late fall after stem growth has ceased to early spring before growth starts without danger of removing flower buds.

To prolong the flowering period of a few shrubs or to produce a second crop of flowers, cut off the dead flower heads. Shrubs in this group are Anthony Waterer spirea, buddleja, rugosa rose, and weigela.

Plants that have showy fruit, such as viburnums (in variety), dogwood

(in variety), hawthorns (in variety), privet (in variety), may be valuable also for their flowers. Some, such as winterberry and Japanese barberry, have showy fruit; the flowers are inconspicuous. In both, the flowers are produced from buds that have been formed on the preceding year's twig growth and the fruit succeeds the flower just as is true with the edible fruits. If you cut off all of the flowering branches soon after they bloom, the plant will not produce fruit as it normally would during mid-summer or late fall. With this group of shrubs, light pruning should be practiced soon after the flowers disappear. Prune in a similar way to that described on pages 13 to 15 by removing a few of the oldest stems at the ground and by thinning the top branches where the stems are too crowded. The method is the same but the amount of pruning varies. Open up the shrubs to allow the light to reach the center of the plant and to show much of the fruit that would be concealed otherwise by the dense foliage.

Shrubs that have showy colored stems produce their most brilliant color on new wood. For this reason, although the method of pruning is the same as for the other shrub-form plants, pruning is heavier. Plants that come in this group are some of the shrub dogwoods (*Cornus alba*, *C. Amomum*, *C. stolonifera*, and *C. stolonifera flaviramea*) kerria (*Kerria japonica*), forsythia (in variety), and some of the low-growing shrub roses.

Pruning done to *modify the shape of a plant* varies considerably, depending upon the desired effect. Special consideration should be given to each individual. If the normal shape of a plant is pyramidal and this form must be accentuated, trim back the lateral branches to an inside bud or branch (figure 4, D). If, on the other hand, you want a broader plant, trim the lateral branches to an outside bud. Cutting to an outside bud accents the horizontal or stratified growing habit of a shrub, and cutting to an inside bud minimizes the effect.

Other instances of *modified form* in plants are espalier fruit trees and some shrubs when used as vines. The espalier fruit trees are trimmed to produce a shape similar to a five-or seven-branched candlestick, and the branches are tied to a trellis. This may form an enclosure to a flower garden, a screen for a service area, or a vine at the side of a building. To trim a shrub used as a vine, cut off all except two or three of the stems at the base. Support these stems on a trellis, wire, or metal vine supports. Such a plant may be used near the house or on a porch where most vines would be too dense or too large.

Hedge Plants

Hedge plants require another type of trimming. To obtain a modified shape, the continual trimming at the ends of the lateral branches forces a dense growth of foliage and twigs.

Use trimmed hedges sparingly and judiciously. They are likely to be entirely out of keeping as a border for

Some of the Best Plants for Clipped Hedges

Size of hedge*	Common name	Botanical name	Spacing in row
Deciduous			
1	Japanese barberry	<i>Berberis Thunbergii</i>	18
3	Cockspur thorn	<i>Crataegus Crus-galli</i>	36
2	Winged euonymus	<i>Euonymus alatus</i>	27
2	Armur privet	<i>Ligustrum amurense</i>	18
1	Regel privet	<i>Ligustrum obtusifolium Regelianum</i>	18
1	Dwarf cranberry bush	<i>Viburnum Opulus nanum</i>	18
Evergreen			
1	Pfitzer juniper	<i>Juniperus chinensis Pfitzeriana</i>	30
3	White pine	<i>Pinus Strobus</i>	36
1	Shrub Japanese yew	<i>Taxus cuspidata</i>	30
1	Dwarf Japanese yew	<i>Taxus cuspidata nana</i>	24
2	Hicks yew	<i>Taxus media Hicksii</i>	24
3	American arborvitae	<i>Thuja occidentalis</i>	30
3	Canada hemlock	<i>Tsuga canadensis</i>	36

*The following numbers indicate hedge height

1—low hedges, from 2 to 4 feet high

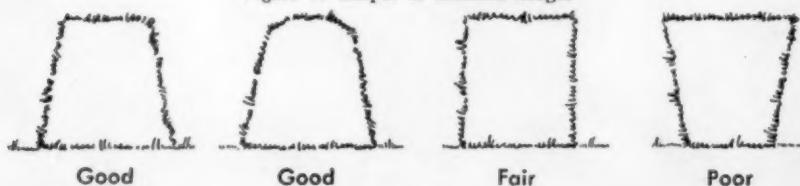
2—medium hedges, from 5 to 8 feet high

3—tall hedges, from 5 to 12 feet high or higher

walks and boundaries of the front lawn. This arrangement sometimes appears neat and tidy if it is well kept, but it requires considerable work. Formal gardens may appropriately have clipped hedges, or such hedges may be properly used as a background for small architectural features in a flower garden. A hedge should be trimmed

in June. This removes most of the current season's growth. Unless the plants are very thrifty, they need no more trimming for the rest of the summer. Those that grow very rapidly may need to be trimmed three or more times a year (early May, late June, and late July) if they are to be kept neat. The hedge should be narrower

Figure 7. Shapes of trimmed hedges



at the top than at the bottom (figure 7). A hedge 2 feet high should be from 3 to 4 inches narrower at the top than at the bottom. Start to shape the hedge in this form the first season after planting, and maintain it year after year until the hedge has acquired the desired height. This form enables the sun to strike the sides from the top to the bottom and helps to maintain a dense growth close to the ground.

Windbreaks

The kind of tree to use for a windbreak planting depends upon the situation and the desired height of the planting. Windbreak plantings for farm-home grounds should be composed of trees that are dense in growth. Also, they should be of varieties that tend to keep their lower branches when crowded by other trees. Those that best meet these require-

ments are Douglas fir, hemlock, red pine, western yellow pine, white pine, Austrian pine, black hills spruce, white spruce, Norway spruce, and white cedar. Plant these on the windward side of the barnyard and house and at least 100 feet from the nearest buildings. A satisfactory windbreak can be made with three or four rows of trees, planting the trees 8 feet apart in the row and the rows from 8 to 10 feet apart. This is true for all the plants listed except white cedar, which should be planted 3 feet apart.

If there is room for it, you may make a temporary planting of quick-growing deciduous trees outside the evergreens. This may be composed of chokecherry or willows which should be taken out as soon as the evergreen trees become large enough to be effective. A windbreak of this kind helps to assure the needed protection in a windswept location.

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